WHAT IS CLAIMED IS:

1. An adenoviral vector for the selective expression of toxin gene in cancer cell, comprising a toxin gene operably linked to a promoter of a gene with undetectable expression in liver, wherein the expression of said toxin gene is reduced in liver cells.

2. The adenoviral vector of claim 1, wherein said promoter is cyclooxygenase-2 promoter.

3. The adenoviral vector of claim 2, wherein said cyclooxygenase-2 promoter is selected from the group consisting of cyclooxygenase-2 L (-1432/+59) and cyclooxygenase-2 M (-833/+59).

4. The adenoviral vector of claim 1, wherein said cancer cell is selected from the group consisting of gastrointestinal cancer cell and pancreatic cancer cell.

5. The adenoviral vector of claim 1, wherein said toxin gene is selected from the group consisting of the herpes simplex virus thymidine kinase gene, the cytosine deaminase gene and the purine nucleoside phosphorylase gene.

6. The adenoviral vector of claim 1, further comprises a RGD motif in the HI loop of the adenovirus fiber protein.

7. A method of killing tumor cells with reduced liver toxicity in an individual, comprising the step of:

administering a therapeutically effective amount of adenoviral vector comprising a toxin gene operably linked to a promoter of a gene with undetectable expression in liver, wherein expression of said toxin gene is reduced in liver cells and expression of said toxin gene in tumor cells results in killing of said tumor cells.

8. The method of claim 7, wherein said administering is by intravenous injection.

9. The method of claim 7, wherein said tumor cells are selected from the group consisting of gastrointestinal cancer cells and pancreatic cancer cells.

10. The method of claim 7, wherein said promoter is cyclooxygenase-2 promoter.

11. The method of claim 10, wherein said cyclooxygenase-2 promoter is selected from the group consisting of cyclooxygenase-2 L (-1432/+59) and cyclooxygenase-2 M (-833/+59).

12. The method of claim 7, wherein said toxin gene is selected from the group consisting of the herpes simplex virus

thymidine kinase gene, the cytosine deaminase gene and the purine nucleoside phosphorylase gene.

13. The method of claim 7, wherein said toxin gene is the herpes simplex virus thymidine kinase gene, and further comprises a step of treating said individual with ganciclovir.

14. The method of claim 7, wherein said adenoviral vector further comprises a RGD motif in the HI loop of the adenovirus fiber protein.